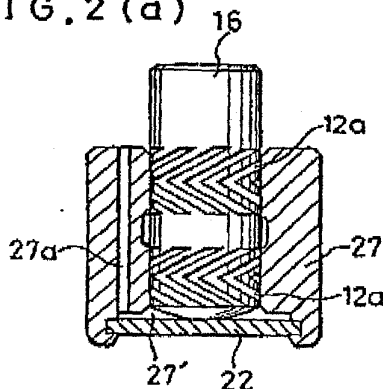


REMARKS

This application was filed with twenty claims. Claims 1-16 were elected for prosecution in response to the prior restriction requirement. Non-elected claims 17-20 are cancelled in this Amendment. Claims 1 and 9 are amended, with new claims ²¹⁻³⁶~~20-35~~ added in this paper. Claims 1-16 and ²¹⁻³⁶~~20-35~~ are now pending in the application for examination. These amendments are believed to place the claims in condition for allowance, and reexamination and reconsideration of the application are now respectfully requested.

The application now includes four independent claims - amended claims 1 and 9, and new claims 20 and 28. Claims 1 and 9 were rejected in the prior office action as anticipated by the U.S. Patent No.

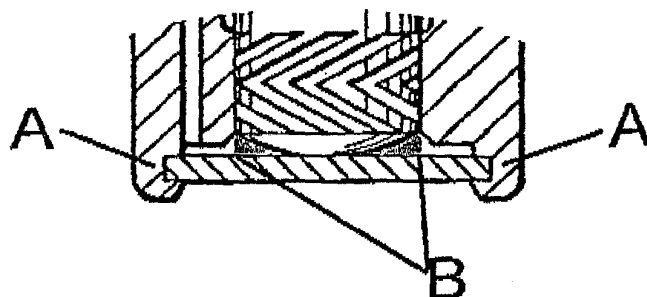
FIG. 2 (a)



(Moritan patent)

5,822,86, to Moritan *et al.* The Moritan patent describes a motor in which a thrust bearing section is formed between one end of a rotating shaft member and a counter plate that is held in place by a contacting portion of a fixed bearing member. These elements are illustrated in Fig. 2(a) of the Moritan patent, which is reproduced here, at left.

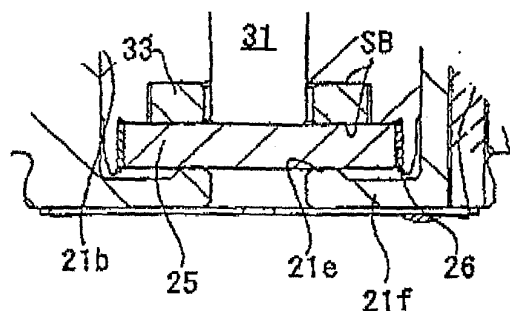
Moritan's configuration is less than ideal, though, because his counter plate is held in place by contact with contacting portions of the fixed bearing member *at a contact location that is restricted to a thin strip very near the edge of the counter plate.* An enlarged view of a part of Moritan's figure appears below.



The location of contact between Moritan's counter plate and his fixed bearing member is indicated by the reference characters "A." The contact location is restricted to a thin strip around the very edge of the contact plate. Moritan's thrust bearing section, on the other hand, is formed directly between the lower end of his rotating shaft and the counter plate, in the shaded region indicated by the reference character "B".

Counter plates of this type are generally, as illustrated here, fairly thin. A problem arises with this configuration, therefore, because the counter plate, being supported only at a location away from the thrust bearing section, can flex and thereby allow axial deflection and displacement of the rotating shaft, especially under shock or vibrational loads. This is obviously not good - especially in the high-speed precision motors that frequently use bearings of this type.

Claim 1, as amended, requires "a bearing contacting portion that bears against a counter plate at a contact location [that is] radially aligned with a thrust dynamic pressure bearing section." Such a configuration is illustrated in Figure 1 of the application, a portion of which is reproduced at right:



Preferred Embodiment

The preferred embodiment illustrated in this figure includes a disk-shaped thrust plate 33 around the rotating shaft 31. A thrust dynamic pressure bearing

section SB is formed on either side of the thrust plate – on the upper side of the thrust plate between the thrust plate and the bearing sleeve, and on the lower side of the thrust plate between the thrust plate and a counter plate 25. In this embodiment, contacting portions 21e of the bearing hold member bear against the counter plate in a contact location which, in the language of amended claim 1, “is radially aligned with” – i.e., at the same distance radially from the rotational axis of the rotating shaft – as the thrust dynamic pressure bearing sections SB.

This alignment of the thrust dynamic pressure bearing sections with the contact location at which the contacting portion bears against the counter plate is advantageous, in that it inhibits flexing of the counter plate that might occur in, for example, a bearing assembly like that described in the Moritan reference. This element thus distinguishes amended claim 1 over the Moritan reference, and claim 1 is thought patentable for at least that reason. The Examiner's allowance of claim 1 is therefore respectfully requested, along with claims 2-8, each of which depends in some way from claim 1.

Independent claim 9 includes an identical limitation:

the bearing hold member includes a bearing contacting portion that bears against a counter plate at a contact location, and wherein *the contact location is radially aligned with a thrust dynamic pressure bearing section.*

Applicants' therefore respectfully request the allowance of amended claim 9, and claims 10-16, which depend from it.

New claims 20 and 28 include limitations phrased in a slightly different way:

wherein the bearing hold member includes a contacting portion that bears against a counter plate at a contact location; and

wherein the contact location is radially aligned with a thrust dynamic pressure bearing section.

Those limitations, though, are to substantially the same effect. Applicant thus respectfully requests the allowance of new independent claims 20 and 28, along with claims 21-27 and 29-35, which depend from them.

Applicant believes the foregoing amendments place the application in condition for allowance and early, favorable action is thus respectfully solicited. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is invited to call the undersigned attorney at the Los Angeles telephone number (213) 337-6711 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

Date: December 19, 2002

By:



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Version with markings to show changes made:

1. (Twice Amended) A motor having a dynamic pressure bearing apparatus comprising:

a fixed bearing member mounted to a motor frame;

a rotating shaft member rotatably inserted with respect to the fixed bearing member;

a lubricating fluid injected into a gap portion between the fixed bearing member and the rotating shaft member;

the rotating shaft member being supported by a dynamic-pressure caused by the lubricating fluid,

wherein the motor frame is provided with a generally cylindrical bearing hold member which holds and fixes [a] the bearing member, [and] wherein the bearing hold member includes a bearing contacting portion that bears against a counter plate at a contact location, and wherein the contact location [that] is radially aligned with a thrust dynamic pressure bearing section.

9. (Twice Amended) A motor having a dynamic pressure bearing apparatus comprising:

a fixed bearing member mounted to a motor frame or a bearing mounting member fixed to the motor frame;

a rotating shaft member rotatably inserted with respect to the fixed bearing member;

a lubricating fluid injected into a gap portion between the fixed bearing member and the rotating shaft member;

the rotating shaft member is supported by a dynamic-pressure caused by the lubricating fluid,

wherein the motor frame or bearing mount member fixed to the motor frame is provided with a generally cylindrical bearing hold member which holds and fixes [a] the bearing member, [and] wherein the bearing hold member includes a bearing

contacting portion that bears against a counter plate at a contact location, and
wherein the contact location [that] is radially aligned with a thrust dynamic
pressure bearing section.

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